

# BLEOMYCIN GENE CLUSTER COMPONENTS AND THEIR USES

## ABSTRACT OF THE DISCLOSURE

This invention provides detailed sequence analysis and characterization of the gene cluster responsible for the synthesis of bleomycin in *Streptomyces verticillus*. The bleomycin gene cluster provides the first hybrid polyketide synthase/nonribosomal peptide synthetase pathway and elucidation of the various modules and enzymatic domains characterizing the pathway provides convenient synthetic routes for bleomycins, bleomycin analogs, and various other polyketides.

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